

### **What is Claimed is:**

1. A fluorescent auxiliary testing apparatus for projecting a testing object and receiving a corresponding testing fluorescent light emitted from the testing object, comprising:

- a light source module for emitting a laser light;

- 5 a collimator located on one side of the light source module to receive and transform the laser light so that the laser light travels in a parallel fashion;

- a dichroic mirror located on one side of the collimator to reflect the parallel laser light;

- 10 a first converging lens located on one side of the dichroic mirror to focus and project the reflected laser light on the testing object so that the testing object emits a corresponding testing fluorescent light which passes through the first converging lens and travels substantially in a nearly parallel fashion to pass through the dichroic mirror;

- 15 a filter assembly located on another side of the dichroic mirror to filter scattering lights and background lights and allow only the testing fluorescent light of wavelengths of a selected range to pass through;

- a second converging lens located on one side of the filter assembly to converge and focus the testing fluorescent light of the selected wavelength range; and

- 20 a photo detector located on one side of the second converging lens to receive the focused testing fluorescent light and transform the focused testing fluorescent light to a photoelectric signal.

2. The fluorescent auxiliary testing apparatus of claim 1 further including a photoelectric signal conversion module which includes:

- a photo signal conversion unit for receiving the photoelectric signal and

transforming the photoelectric signal to a voltage signal;

an amplifier for receiving and amplifying the voltage signal; and

an analog to digital signal conversion unit for transforming the voltage signal to a digital signal.

- 5 3. The fluorescent auxiliary testing apparatus of claim 1, wherein the light source module is a laser diode.
4. The fluorescent auxiliary testing apparatus of claim 1, wherein the dichroic mirror has a flat surface to receive and reflect the laser light and form an angle of 45 degrees against the incident direction of the laser light.
- 10 5. The fluorescent auxiliary testing apparatus of claim 1, wherein the filter assembly has a flat surface to receive the testing fluorescent light and form an angle of 90 degrees against the incident direction of the testing fluorescent light.
6. The fluorescent auxiliary testing apparatus of claim 1, wherein the filter assembly is an optical band pass filter.
- 15 7. The fluorescent auxiliary testing apparatus of claim 1, wherein the dichroic mirror is a double-wavelength dichroic mirror.
8. A fluorescent auxiliary testing apparatus comprising a light source module, a collimator, a dichroic mirror, a first converging lens, a filter assembly, a second converging lens and a photo detector;
- 20 wherein the light source module emits a laser light which is received and transformed by the collimator to become a parallel laser light to travel forwards, the dichroic mirror reflects the laser light to the first converging lens which converges and focuses the laser light for projecting to a testing object so that the testing object emits a corresponding testing fluorescent light which passes through the first

converging lens to become substantially nearly parallel for traveling forwards and passing through the dichroic mirror and to be filtered by the filter assembly such that only the testing fluorescent light of a selected range of wavelengths passes through, and the second converging lens focuses the testing fluorescent light and transfers the testing fluorescent light to the photo detector which receives and transforms the testing fluorescent light to a photoelectric signal.

9. The fluorescent auxiliary testing apparatus of claim 8 further including a photoelectric signal conversion module which includes:

a photo signal conversion unit for receiving the photoelectric signal and transforming the photoelectric signal to a voltage signal;

an amplifier for receiving and amplifying the voltage signal; and

an analog to digital signal conversion unit for transforming the voltage signal to a digital signal.

10. The fluorescent auxiliary testing apparatus of claim 8, wherein the light source module is a laser diode.

11. The fluorescent auxiliary testing apparatus of claim 8, wherein the dichroic mirror has a flat surface to receive and reflect the laser light and form an angle of 45 degrees against the incident direction of the laser light.

12. The fluorescent auxiliary testing apparatus of claim 8, wherein the filter assembly has a flat surface to receive the testing fluorescent light and form an angle of 90 degrees against the incident direction of the testing fluorescent light.

13. The fluorescent auxiliary testing apparatus of claim 8, wherein the filter assembly is an optical band pass filter.

14. The fluorescent auxiliary testing apparatus of claim 8, wherein the dichroic mirror is

a double-wavelength dichroic mirror.